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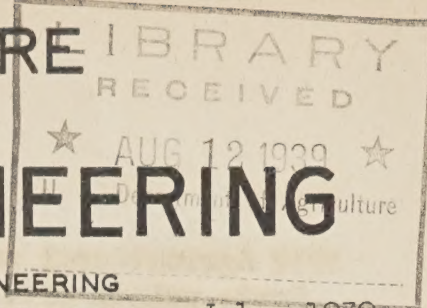
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CURRENT LITERATURE

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BUREAU OF AGRICULTURAL CHEMISTRY AND ENGINEERING

Vol. 8, No. 12.

UNITED STATES DEPARTMENT OF AGRICULTURE

July, 1939.

WASHINGTON, D.C.

Accidents.

Farm accidents in Illinois in 1938, with comparisons. Chicago, Ill.,
Research department, Farm equipment institute, 1939. 4p. Information
bulletin. Release 83.

Agriculture.

Agricultural situation in San Fernando valley, California. By P.A. Ewing.
Washington, D.C., 1939. 128p. Processed. U.S. Department of agri-
culture. Bureau of agricultural engineering. Division of irrigation.

Annual report: Research and investigational activities for the fiscal
year ending June 30, 1939. The College of agriculture, University of
Georgia. Ed. by F.B. Lanham. Athens, Ga. 1939. 80p.

Climatic conditions and suggested cropping systems for northwestern
Oklahoma. By H.A. Daniel and H.H. Finnell. Stillwater, Okla., 1939.
25p. Literature cited: p.24-25. Oklahoma agricultural and mechanical
college. Experiment station circular no. 83.

Farming hazards in the drought area. By R.S. Kifer and H.L. Stewart.
Washington, U.S. Govt. print. off., 1938. 219p. Works progress
administration. Division of social research. Research monograph XVI.

1939 Agricultural conservation program--Delaware. Washington, U.S. Govt.
print. off., 1939. 13p. U.S. Agricultural adjustment administration.
East central division. ECR-301-Del.

1939 Agriculture conservation program--Kentucky. Washington, U.S. Govt.
print. off., 1939. 15p. U.S. Agricultural adjustment administration.
East central division. ECR-301-Ky.

1939 Agricultural conservation program--Maryland. Washington, U.S. Govt.
print. off., 1939. 14p. U.S. Agricultural adjustment administration.
East central division. ECR-301-Md.

1939 Agricultural conservation program--North Carolina. Washington, U.S.
govt. print. off., 1939. 15p. U.S. Agricultural adjustment adminis-
tration. East central division. ECR-301-N.C.

1939 Agricultural conservation program--Tennessee. Washington, U.S. Govt.
print. off., 1939. 14p. U.S. Agricultural adjustment administration.
East central division. ECR-301-Tenn.

1939 Agricultural conservation program--Virginia. Washington, U.S. Govt.
print. off., 1939. 15p. U.S. Agricultural adjustment administration.
East central division. ECR-301-Va.

1939 Agricultural conservation program--West Virginia. Washington, U.S. Govt. print. off., 1939. 13p. U.S. Agricultural adjustment administration. East central division. ECR-301-W. Va.

Seventy-seventh annual report of the secretary of the State board of agriculture of the state of Michigan and fifty-first annual report of the experiment station from July 1, 1937 to June 30, 1938. Lansing, Mich., 1938. 165p.

Super-normal granary. By Frank Thone. Science news letter. v. 35, no. 3. January 21, 1939. p. 42-43. Plan for storing twelve-billion-dollar reserve of foodstuffs and fibers is proposed.

What's new in farm science: Part II. Annual report of the Director, Agricultural experiment station, University of Wisconsin. Madison, Wis., 1939. 96p.

Belts.

New yardstick for selecting leather belts. By L.H. Skougor. Power. v. 83, no. 7. July 1939. p. 401-403. Examples show how to use new American leather belting assn. standards for selecting flat-leather belts.

Building Construction.

Labor and material costs in small-house construction. Monthly Labor Review. v. 48, no. 5. May 1939. p. 1058-1061.

Materials required per cubic yard of slag, stone and gravel concrete. Washington, D.C., National slag association, 1939. 23p. Mimeographed.

Preparation and revision of building codes. By G.N. Thompson. Washington, U.S. Govt. print. off., 1939. 18p. "Selected references": p.17-18. U.S. National bureau of standards. Building materials and structures. Report BMS19.

Strength of bolted timber joints. By John A. Scholten. Engineering news-record. v. 122, no. 19. May 11, 1939. p. 68-69. Table I-- Safe loads for common bolts.

Building Materials.

Albert Farwell Bemis Foundation. Federal Home Loan Bank Review. v. 5, no. 7. April 1939. p. 213. Among newer organizations devoted to research and study in field of building materials and construction methods is the Albert Farwell Bemis Foundation which operates as division of the Massachusetts Institute of Technology. Foundation is permitted to conduct any type of study in "search for, and dissemination of, knowledge pertaining to adequate, economical, and more abundant shelter." At outset, however, it is believed that major emphasis will be given to problems to which objective physical measurements may be applied--particularly behavior of materials, singly and in combination, under conditions of use--together with supporting economic studies.

Building Materials. (Cont'd)

Endowment was designed to provide organization to act as clearing house for latest scientific knowledge pertinent to building industry. It was planned to coordinate existing information in this field, to instigate new research activities, and ultimately to publish its findings. It was intended that eventually anyone interested in obtaining accurate scientific data concerning housing could turn to Foundation not only as source of information, but also for direction to other agencies where studies were being made.

Homemade concrete blocks. Washington, D.C., n.d. 7p. Mimeographed. U.S. Bureau of agricultural engineering. Division of plans and service. Information series no. 56.

Properties of some fiber building boards of current manufacture. By C.G. Weber and S.G. Weissberg. Washington, U.S. Govt. print. off., 1939. 5p. U.S. National bureau of standards. Building materials and structures. Report BMS13.

Rammed-earth construction. In Report on the agricultural experiment stations, 1938. By J.T. Jardine and F.D. Fromme. Washington, U.S. Govt. print. off., 1939. p. 140.

Standard specifications for gypsum plastering, including requirements for lathing and furring. Approved as American standard by the American standards association, Sept. 29, 1938. New York, N.Y., American standards association, 1939. 11p.

Chemistry, Technical

Humanics of chemurgy. By Hugh L. White. Progress in Kansas. v. 5, no.3. February, 1939. p. 95-102.

New synthetic textiles in relation to wool. Textile Weekly. v. 23, no. 570. February 3, 1939. p. 150. New synthetic textiles can not be regarded as substitutes for wool, but as supplementary to wool, for production of novel and cheaper fabrics, and novel effects. They are new media of expression for textile designer. Their introduction rendered services of qualified chemists even more indispensable in textile dyeing and finishing trade.

Condensation.

How to overcome condensation in building walls and attics. By L.V. Teesdale. Heating and ventilating. v. 36, no. 4. April, 1939. p. 36-40. Discusses problem, gives data on resistance of different materials to vapor transfer, and concludes with recommendations for solution of problem.

Preventing moisture in farmhouses. Washington, D.C., n.d. 10p. Mimeographed. U.S. Bureau of agricultural engineering. Division of structures. Information series 71.

Conservation of Resources.

Conservation of natural resources in the United States: Selected list of recent writings (Supplementing the mimeographed list, March 21, 1934). Comp. by A.L. Baden. Washington, D.C., 1938. 72p. Mimeographed. Library of Congress. Division of bibliography.

Energy resources and national policy. Power Plant Engineering. v.43, no. 4. April, 1939. p. 278-279. Recommendations to President of the United States by the National Resources Committee, based on series of special staff reports.

Engineering in soil and water conservation. By V.R. Hillman. Agricultural engineering. v. 20, no. 5. May, 1939. p. 197-198.

National resources planning facts. Washington, U.S. Govt. print. off., 1939. 11p. National resources committee.

Dairy Farm Equipment - Sanitation

Producing clean milk. By A.G. Lochhead. Ottawa, Canada, 1939. 16p. Dominion of Canada. Department of agriculture. Farmers' bulletin 12.

Simplest method of cleansing milking machines. In Fifty years of progress on Dominion experimental farms, 1886-1936. Ottawa, J.O. Patenaude.....1939, p.47.

Dams.

Pensacola dam. By W.R. Holway. Construction. v. 82, no. 65. April 3, 1939. p. 12-13, 35, 37. Oklahoma's \$20,000,000 project on Grand River.

Diesel Engines.

Personal reflections on forty years of diesel-engine development. By Alfred J. Buchi. Mechanical engineering. v. 61, no. 3. March, 1939. p. 213-216.

Drainage.

Effect of drainage on water levels of farm well. By D.G. Miller. St. Paul, Minn., 1939. 1p. University of Minnesota. Agricultural engineering news letter. no. 87.

Land drainage improvement works carried out by the Rother and Jury's Gut Catchment board. Ministry of agriculture. Journal. v. 45, no. 11. February, 1939. p. 1147-1154.

Drying (Crops)

Drying seed cotton. By F.L. Gerdes, W.J. Martin and C.A. Bennett. Washington, U.S. Govt. print. off., 1939. 8p. U.S. Department of agriculture. Leaflet no. 181.

Drying (Crops) (Cont'd)

Grass and crop drying on a Yorkshire mixed farm. By Clifford Bowles. Ministry of agriculture. Journal. v. 45, no. 11. February, 1939. p. 1093-1100. Discussion of the Kilmartin grass and crop dryer.

Haying in the rain: Study of grass silage. By J.G. Archibald and C.H. Parsons. Amherst, Mass., 1939. 19p. Massachusetts agricultural experiment station. Bulletin no. 362.

Methods for drying grain on the farm. By C.F. Kelly. Agricultural engineering. v. 20, no. 4. April, 1939. p. 135-138. Paper considers only drying factor, although recognizing that at low temperature wheat of high moisture content will store safely and that in some cases as much benefit may result from dissipation of heat by ventilation system as by removal of moisture.

Portable hay drier. By Wm. Aitkenhead. Agricultural engineering. v. 20, no. 5. May, 1939. p. 179-180. In development of portable drier contradictory conditions have to be met. Size and weight have to be kept low to obtain portability, and to be practical it must have capacity.

Electric Wiring.

Wiring the dairy building. By W.C. Harrington. Amherst, Mass., 1939. 5p. Mimeographed. Massachusetts state college. Engineering extension series no. 72.

Electricity Distribution.

Electric light and power industry in the United States. New York, Edison electric institute, 1939. 34p. Statistical bulletin no. 6.

Engineering problems of Nebraska power. By V.T. Boughton. Engineering news-record. v. 122, no. 21. May 25, 1939. p. 73-76. Engineering and construction difficulties of first two public developments in Nebraska are outlined and manner in which that experience is being used to advantage on project now under construction is described.

Electricity on the Farm.

America's electric home and farm authority. Rural electrification and electro-farming. v. 14, no. 166. March, 1939. p. 195-196. Concerns itself with financing of purchase of appliances, needed on farms and in homes; of late, wiring contracts are also included. It pays ready cash to local dealers or manufacturers, recovering amount involved, together with interest on deferred payments, from consumers.

Analyzing electrical uses on the farm. By S.B. Darnell. Agricultural engineering. v. 20, no. 4. April 1939. p. 153. Most important feature of studies to analyze electrical uses on farm has been obtaining of comparative data between farmstead and urban home and factory.

Electricity on the Farm. (Cont'd)

Some findings presented: 1. It is fallacy unknowingly perpetrated on farmers that extension of high-line was climax and ultimate end of rural electrification. 2. We have learned from survey that farm has been wired with same principles in mind that applied to village dwelling. 3. We have learned that home and producing end of farming have the poorest kind of lighting, lighting standards that are far below urban communities near by. 4. Survey of equipment usage on farm shows that again we are treating farm as just another residence; that farm electrification has in most cases been used only for increasing standard of living in farm home, with very little thought of its many uses in producing end of business. 5. Analysis gives us comparison of present usage of electric power, on producing end of farm, with other power sources.

How one farmer makes electricity pay profits. By Frank M. Mason. Agricultural engineering. v. 20, no. 4. April, 1939. p.141-143. Unless farm families can derive profits and benefits that are worth more than their cost, we have created just another expense item or burden on farm.

Organization for progress in rural electrification. By C.J. Hurd. N.p., n.d. 10p. Mimeographed. Presented at the Annual meeting of the American society of agricultural engineers, Asilomar, Calif., June 27-30, 1938.

Results of surveys on research in the uses of electricity in the dairy and poultry industries. By H.L. Garver. Washington, D.C., U.S. Bureau of agricultural chemistry and engineering, 1939. 15p. Mimeographed. Given before Rural electrification division, A.S.A.E., St. Paul, Minn., June 22, 1939.

Use of electricity by farm and home equipment. By H.E. Pinches. Storrs, Conn., 1939. 7p. Mimeographed. Connecticut state college. Extension service.

Verona power line. By E.R. McIntyre. Wisconsin agriculturist and farmer. v. 65, no. 25. December 3, 1938. p. 1, 6. Utility survey taken on 28 Dane county farms.

Where we stand on electric brooding. By I.P. Blauser. Farmers digest. v. 2, no. 12. April, 1939. p.82-84.

Engineering.

Engineer and public service. By A.E. Morgan. In Engineering experiment station news, Ohio state university. v. 11, no. 3 June 1939. p.2-8.

Engineering library aids engineers of the world: a pictorial story of research in the library. Mechanical engineering. v. 61, no.3. March, 1939. p.222-223.

Engineering. (Cont'd)

- Library and engineering research. By Dorothy W. Graf. Agricultural engineering. v. 20, no. 4. April, 1939. p. 145.
- Mechanical engineering: materials, methods, and men. By Gerard Swope. Mechanical engineering. v. 61, no. 1. January, 1939. p. 5-7.
- Physiology for the engineer. By Howard W. Haggard. Mechanical engineering. v. 61, no. 1. January, 1939. p. 8-12. Illumination affects more than eye alone. Physiology and air conditioning.
- Professional spirit in engineering. By Vannevar Bush. Mechanical engineering. v. 61, no. 3. March, 1939. p. 195-198.
- Some interesting engineers of antiquity. By E.E. Howard. Civil Engineering. v. 9, no. 7. July 1939. p. 426-427.
- Trend of civil engineering since Franklin. By Abel Wolman. Franklin institute. Journal. v. 226, no. 3. September, 1938. p. 413-428.

Erosion Control.

- Erosion and related land use conditions on the Scantic river watershed, Connecticut-Massachusetts. By P.H. Montgomery. Washington, U.S. Govt. print. off., 1939. 27p. U.S. Department of agriculture. Soil conservation service.
- Erosion and related land use conditions on the watershed of White rock reservoir near Dallas, Texas. By R.M. Marshall and C.B. Brown. Washington, U.S. Govt. print. off., 1939. 29p. U.S. Department of agriculture.

Evaporation.

- Evaporation studies III. Ten years of evaporation at Wooster as measured with black and white atmometers. By J.D. Wilson. In Bimonthly bulletin, Ohio agricultural experiment station. v. 24, no. 197. Wooster, Ohio, 1939. p. 11-25.

Farm Buildings.

- Building and fumigating a corn crib. By J.R. Watson. Gainesville, Fla., 1939. 2p. University of Florida. Agricultural experiment station. Press bulletin 533.
- Emergency repairs for farm buildings. By Ivan D. Wood. Farmers digest. v. 2, no. 12. April, 1939. p. 54-57.
- Farm buildings in relation to farm management in Indiana. Lafayette, Ind., 1939. 48p. Purdue university. Agricultural experiment station. Bulletin no. 435.
- Rammed earth buildings increasing. By R.S. Patty. Dakota-farmer. v. 59, no. 2. January 28, 1939. p. 25, 27.

Farm Buildings. (Cont'd)

Tobacco shed construction. By L.L. Sammet. Storrs, Conn., n.d. 6p.
Mimeographed. Connecticut state college. Cooperative extension work
in agriculture and home economics.

Farm Machinery and Equipment.

Cost of using farm machinery in Indiana. By E.L. Butz and O.G. Lloyd.
Lafayette, Ind., 1939. 17p. Purdue university. Agricultural
experiment station. Bulletin no. 437.

Economic study of harvesting with the small combine in Indiana. By J.C.
Bottum, W.R. Rothenberger and I.D. Mayer. Lafayette, Ind., 1939.
21p. Purdue university. Bulletin no. 436.

Handling straw better. By R.W. Robertson. Farm Implement News.
v. 59, no. 22. November 3, 1938. p. 33.

Improving the mechanics of crop production. In Report of the agricul-
tural experiment station. University of California, July 1, 1936
to June 30, 1936. Berkeley, Calif., 1938. p. 81-97. "References":
p. 96-97.

Labor efficiency and power economy in corn production. By J. Brownlee
Davidson. Agricultural engineering. v. 20, no. 5. May, 1939.
p.183-186. Paper is intended to be review of the engineering aspects
of production of corn. Principal matters to be considered will be
labor efficiency, power economy, and expenditures for farm machinery.
Table I. Power and labor used in growing and harvesting corn as in-
fluenced by kind of power used. Table II. Labor, power, and machinery
expenditures in growing surface checked corn.

McCrary's report provides sales ammunition. Implement record. v.36,
no.5. May, 1939. p. 56.

Manufacture and sale of farm equipment and related products, 1938.
Washington, U.S. Govt. print. off., 1939. 14p. Processed. U.S.
Bureau of the census.

Mechanical row-crop cultivation. By S.J. Wright. Ministry of agri-
culture. Journal. v. 45, no. 10. January, 1939. p.1003-1007.

Modernizing and mechanizing old farming principles and methods on the
Wiltshire hills. By T.K. Jeans. Journal of the Ministry of
agriculture. v. 45, no. 12. March, 1939. p. 1208-1217.

New departure handbook. 13th ed. Bristol, Conn., New departure,
Division, General motors corporation, 1939. 149p. v.1. Dimensions,
load ratings, bearing fits, list prices.

Tobacco seed cleaner. By C.I. Gunness. In Annual report for the fiscal
year ending November 30, 1938. Amherst, Mass., 1939. p.52-53.
Massachusetts agricultural experiment station. Bulletin no. 355.

Farm Power.

Cost of horse labour. By A.J. Marval and P.J. Jones. Ministry of agriculture. Journal. v. 45, no. 11. February, 1939. p.1107-1114.

Farmhouses.

Costs and values in rural housing. By Deane G. Carter. Agricultural engineering. v. 20, no. 5. May, 1939. p.199-200. Summary and conclusions: 1. Investigation of housing conditions, needs, and incomes indicated that Arkansas homes could be improved in quality only by substitution of other values in lieu of cash. 2. Study was made of 214 houses built with contribution of home labor and material resources to reduce cost. 3. Average cash expenditure per house was \$740 (on 190 records, \$700); annual income per farm, \$785, average value of contributed labor and material, \$875; and calculated total value per house, \$1,575. 4. Principal non-cash contributions consisted of home labor valued at \$344 and native materials valued at \$531 per house. 5. Conservation of cash resources enabled owners to obtain much higher quality housing than average of white owners of state. 6. Annual income of farm is major factor in quality of housing. 7. Average unit values of houses studied were 11.1 cents per cubic foot, \$1.64 per square foot, and \$332 per room. Cash cost was 44.4 percent of total value, and home contribution was 55.6 percent.

Fertilizer Placement.

Effects of fertilizer applications and other cultural practices on some kernel characteristics of winter wheat. By J.T. Sullivan and others. Lafayette, Ind., 1938. 48p. Literature cited: p.18. Purdue university. Agricultural experiment station. Bulletin no. 432.

Side placement of fertilizer pays dividends. By Donald L. Robertson. Farmers digest. v. 2, no. 12. April, 1939. p. 69-70.

Fertilizer.

How to make manures more profitable on the farm; Timely information on manures and granulated superphosphate. Baltimore, Md., Davison chemical corp., 1939. 39p.

Flax.

Seed flax in eastern Washington. By O.E. Barbee and E.G. Schafer. Pullman, Wash., 1939. 16p. State college of Washington. Agricultural experiment station. Bulletin no. 370.

Floods and Flood Control.

Floods in the Canadian and Pecos river basins of New Mexico, May and June 1937, with summary of flood discharges in New Mexico. Washington, U.S. Govt. print. off., 1939. 68p. Processed. U.S. Geological survey. Water supply paper 842.

Floods and Flood Control. (Cont'd)

Probability of recurrence of Ohio river floods. By C.F. Johnson. Public Works. v. 70, no. 4. April 1939. p. 9-11. Probability curve determined by use of probability paper and skew curve principle indicates higher floods to come in Ohio river valley. Application of this principle and results of computations are given.

Floors.

Indentation and recovery of low cost floor coverings. By P.A. Sigler and M.B. Woodward. Washington, U.S. Govt. print. off., 1939. 9p. U.S. National bureau of standards. Building materials and structures report BMS 14.

Treatment for slippery cowshed floors. By W.A. Scriven and R. Kenney. Ministry of agriculture. Journal. v. 45, no. 10. January, 1939. p.998-1002.

Flow of Water and Gases.

Discharge rates from gas flowmeters: proper temperature and pressure corrections. By John C. Whitwell. Industrial and engineering chemistry. v. 30, no. 10. October, 1938. p.1157-1162. New method is proposed of plotting discharge flow rates, for instruments of Venturi and orifice type, against differential manometer reading. Groups to be plotted are so calculated that one line on such plot will be universal for varying values of inlet pressure and temperature. Groups are derived by rearrangement of terms of well-known equations. Types of instruments included in discussion are plate and nozzle orifices, Venturi tubes, and long-tube capillary orifices. Last are studied in both viscous and turbulent flow ranges for gas in capillary. For each of types of meter, sample discharge rate plot is shown, as recommended. Alignment charts are also given as convenient method of calculating groups found to be necessary in new type of plot.

Flow of water in irrigation and similar canals. By F.C. Scobey. Washington, U.S. Govt. print. off., 1939. 79p. Literature cited: p.75-78. U.S. Department of agriculture. Technical bulletin no.652.

Fort supply project. By C.S. Bradley. Construction. v. 82, no. 65. April 3, 1939. p.15, 24. Part of plan to control the flood waters of Oklahoma's Canadian river.

Laws of turbulent flow in open channels. By G.H. Keulegan. Washington, U.S. Govt. print. off., 1939. 74lp. U.S. National bureau of standards. Research paper RP1151

Ohio stream flow. By C.V. Youngquist. In Engineering experiment station news, Ohio state university. v. 11, no. 2. April 1939. p.12-13. Channel-storage relations from stream-flow hydrographs.

Flow of Water and Gases.

Relationship of stream flow to precipitation on the Salt river watershed above Roosevelt dam. By C.K. Cooperrider and G.G. Sykes. Tucson, Ariz., 1938. 69p. Mimeographed. University of Arizona. Agricultural experiment station. Technical bulletin no. 76.

Frost Protection.

Protection of orchards against frost. By W.R. Schoonover, F.A. Brooks, and H.B. Walker. Berkeley, Cal., 1939. 70p. University of California. Agricultural extension service. Circular 111.

Fuels.

Combustion of wood-waste fuels. By Henry Kreisinger. Mechanical engineering. v. 61, no. 2. February, 1939. p.115-120. Waste-wood fuel is used mostly for making steam, and is burned in furnaces of Dutch-oven type with horizontal or inclined grates. Fuel is supplied through chutes in roof of dutch oven and forms conical pile on grate about 3 feet high. Table 1. Analyses of wood-waste fuels.

Cooperative fuel research motor-gasoline survey, summer 1938. Comp. by E.C. Lane. Washington, D.C., 1938. 31p. Processed. U.S. Bureau of mines. Report of investigations R.I. 3429.

Correlated analysis of tractor engine fuels by theoretical values and by laboratory and field tests. By Earl Bartholomew and others. Agricultural engineering. v. 20, no. 4. April, 1939. p.147, 152. Exhaustive tests made first in laboratory and confirmed in field have shown that gasoline, used in engine designed for it, develops about 26 percent more power than distillate used in comparable engine designed for distillate. And it required 21 percent less gasoline, by weight, to do some work.

Heats of combustion of anthracite cokes and artificial and natural graphites. By P.H. Dewey and D.R. Harper. Washington, U.S. Govt. print. off., 1939. 457-474p. References: p.474. U.S. National bureau of standards. Research paper RP1139.

Proposed specifications for a standard tractor fuel. Agricultural engineering. v. 20, no. 4. April, 1939. p.139-140. Committee on Tractor Fuels of American Society of Agricultural Engineers proposes specification. Objects of proposal at this time are (1) to bring out discussion and constructive criticism from membership that will help Committee in formulating specification that is best for all concerned, and (2) to provide basis on which to begin cooperation with previously named societies or other groups wishing assistance on problem.

Tractor fuels. By E.L. Barger. Manhattan, Kans., 1939. 76p. Bibliography: p.73. Kansas state college. Engineering experiment station. Bulletin no. 37.

Hitches.

Care and hitches for work horses. By J.W. Burch and T.A. Ewing. Columbia, Mo., 1939. 12p. University of Missouri. Agricultural extension service. Circular 403.

Hydraulics.

Hydraulics of open ditches. By John G. Sutton. Agricultural engineering. v. 20, no. 5. May, 1939. p.175-178, 180. Steps in hydraulic design of open ditches: 1. Make field investigation to determine character of soils which would be encountered in ditch construction, degree of stability of side slopes, proper depth of drain, elevation of fields, buildings, roads, etc., which are to be protected. 2. Obtain profiles and cross sections at 100-foot intervals of existing channels. Obtain elevations of tile outlets which are often controlling factors in design ditches. 3. Determine degree of drainage required and select runoff coefficient or suitable data. 4. Determine probable degree of maintenance. 5. Select value of n to use and compute required size of ditch by use of Kutter's formula. 6. Make tentative design of ditch which will furnish adequate degree of drainage protection, selecting tentative depth, bottom width, and side slopes. 7. Make study on profile and determine final design including size, cross sections, and elevations of channels.

Observational versus experimental hydraulics. By G.H. Matthes. Civil Engineering. v. 9, no. 7. July 1939. p.399-340. Observational hydraulics has been on decline since advent of laboratory yet in many problems more direct and dependable answer might be obtained through field investigation alone. This is not said in condemnation of model experimentation; point is rather that in recent years one type of research has been emphasized at expense of another, whereas two forms are actually largely interdependent. Interesting list of problems that laboratory cannot solve without assistance from field observations is presented, and need for installation of observational facilities in hydraulic structures is stressed.

Observed effects of geometric distortion in hydraulic models: discussion. By Kenneth D. Nichols. American society of civil engineers. Proceedings. v. 65, no. 5. May, 1939. p.867-868.

Two decades of hydraulics at the University of Iowa: Abstracts of theses, publications, and research reports, 1919-1938. Ed. by F.T. Mavis. Iowa City, Ia., 1939. 80p. University of Iowa studies. Studies in engineering. Bulletin 19.

Hydrology.

Deficiencies in basic hydrologic data. Report of the Special advisory committee on standards and specifications for hydrologic data. Submitted by the Water resources committee on April 18, 1936, to the National resources committee. Washington, U.S. Govt. print. off., 1937. 66p.

Hydrology. (Cont'd)

Hydrological studies on the Yangtze river, China. III. Effect of the Tungting and Peyang lakes on the Yangtze river. By Shoiti Hayami. Shanghai, 1939. 205-224p. Separate print no. 11. Journal of the Shanghai science institute. section 1, vol. 1, p. 205-225.

Irrigation.

Improving irrigation on Utah farms. By William Peterson. Reclamation era. v. 29, no. 5. May, 1939. p.109-110.

Large home-made water wheels lift water for irrigation. Engineering News Record. v. 122, no. 15. April 13, 1939. p.510: Two large wooden wheels of the "undershot" type for lifting water are operating on Yellowstone River about 10 miles from Columbus, Mont. Wheels are 42 feet in diameter and lift water almost this height to wooden flume leading to main flumes in fields on adjoining bench.

Sewage irrigation as practiced in the Western states. By W.A. Hutchins. Washington, U.S. Govt. print. off., 1939. 60p. "Literature cited": 56-59. U.S. Department of agriculture. Technical bulletin no.675.

Why irrigation? By William E. Warne. Reclamation era. v. 29, no.4. April, 1939. p.74-76.

Land.

Economic study of land utilization in Wyoming county. New York. By H.R. Kling. Ithaca, N.Y., 1938. 56p. Cornell university agricultural experiment station. Bulletin 707.

Evolution of the land program. By L.C. Gray. Washington, U.S. Bureau of agricultural economics, 1939. 17p. Processed. Address before the Bureau of agricultural economics conference on agricultural planning, March 22, 1939.

Land facts on the southern plains. By G.K. Rule. Washington, U.S. Govt. print. off., 1939. 22p. U.S. Department of agriculture. Miscellaneous publication 334.

Lighting.

Study of lighting intensity. By F.B. Lanham. In Annual report: Research and investigational activities for the fiscal year ending June 30, 1939, College of agriculture, University of Georgia. Ed. by F.B. Lanham. Athens, Ga., 1939. p.62-66.

Lubrication.

Chemical constitution of the "extract" portion of the lubricant fraction from a mid continent petroleum. By B.J. Mair, C.B. Willingham and A.J. Streiff. Washington, U.S. Govt. print. off., 1939. 581-607p. References: p.607. U.S. National bureau of standards. Research paper RP1145.

Lubrication. (Cont'd)

Exhaustive fractionation of the "extract" portion of the lubricant fraction from a mid-continent petroleum. By B.J. Mair and C.B. Willingham. Washington, U.S. Govt. print. off., 1938. 535-563p. References: p.562-563. Research paper RP1143.

Hydrogenation of the "extract" portion of the lubricant fraction from a mid-continent petroleum. By B.J. Mair, C.B. Willingham and A.J. Streiff. Washington, U.S. Govt. print. off., 1939. 565-580p. References: p.580. U.S. National bureau of standards. Research paper RP1144.

Lubrication: Publications by staff of the national bureau of standards 1910-1937. Washington, D.C., 1938. 15p. Mimeographed. U.S. National bureau of standards. Letter circular LC-523.

Miscellaneous.

Abbreviations used in the Department of agriculture for titles of publications. By Carolyn Whitlock. Washington, U.S. Govt. print. off., 1939. 278p. U.S. Department of agriculture. Miscellaneous publication no. 337.

Consumer market data handbook. 1939 ed. By B.P. Haynes and G.R. Smith. Washington, U.S. Govt. print. off., 1938. 464p. U.S. Bureau of foreign and domestic commerce. Domestic commerce series no.102.

Employee training policy. Report of committee on in-service training. Washington, D.C., 1939. 40p. Processed. U.S. Department of agriculture. Office of personnel.

List of American economic histories. By E.E. Edwards. Washington, D.C., 1939. 43p. Mimeographed. U.S. Department of agricultural library. Bibliographical contributions. No. 27 (Edition 2).

Mimeographed lists available for distribution. September, 1938. Washington, D.C., 1938. 5p. Mimeographed. Library of Congress. Division of bibliography.

Present-day popular economic thought. By G.W. Starr. Mechanical engineering. v. 61, no. 3. March, 1939. p. 209-212.

Proceedings of the thirty-fourth annual convention of the Tennessee State horticultural society, held at Chattanooga, Tenn., November 30, December 1 and 2, 1938. Knoxville, Tenn., Stubley printing co., 1939. 122p.

References on the significance of the frontier in American history. By E.E. Edwards. Washington, D.C., 1939. 99p. Mimeographed. U.S. Department of agriculture. Library. Bibliographical contribution no. 25 (Edition 2).

Summary report of research at the National bureau of standards on the stability and preservation of records on photographic film. By B.W.

Miscellaneous. (Cont'd)

Scribner. Washington, U.S. Govt. print. off., 1939. 17p.
References: p.16-17. U.S. National bureau of standards. Miscellaneous publication M162.

Mississippi River.

Highest and lowest annual stages of the Mississippi river and principal tributaries to 1937. Compiled at the Office of the president, Mississippi river commission. Vicksburg, Miss., 1939. 333p.

Pest Control.

Control of corn borer by light traps. By G.A. Ficht and T.E. Hienton. Agricultural engineering. v. 20, no. 4. April, 1939. p.144,152. Studies have shown some definite promise in use of light to control European corn borer, at least in some instances. They were also found to be useful in determining seasonal character of corn borer development, such as time of flight and oviposition, progress of development of second brood in Indiana during past four years, and effect of weather on moth activity. They have also provided other data of experimental and practical interest.

Control of termites. Farmers Digest. v. 2, no. 11. March 1939. p.14-17. Condensed from Cimco Fortnightly.

Controlling plant lice on field and garden crops. By Ray Hutson. East Lansing, Mich., 1939. 11p. Michigan state college. Extension division. Extension bulletin 198.

Electric insect control. In Report on the agricultural experiment stations, 1938. By J.T. Jardine and F.D. Fromme. Washington, U.S. Govt. print. off., 1939. p.144-145.

Pipes and Piping.

Cast-iron water pipe. By A.H. Dierker. In Engineering experiment station, Ohio state university. v. 11, no. 3. June 1939. p. 11-12. Gives historical data.

New American pipe standard. American Standards association. Mechanical engineering. v. 61, no. 1. January, 1939. p. 33-35. Purpose of article to bring new system of schedule numbers to attention of piping designers in general in such manner as to expedite universal use of B36.10 standard through familiarizing all concerned with its advantages over old setup.

Some tests of acid resistant pipe. By R.D. Leitch. Washington, D.C., 1938. 7p. Mimeographed. U.S. Bureau of mines. Report of investigations. R.I. 3426.

Plastics.

New plastic rivals rubber. Popular mechanics magazine. v. 71, no.6. June, 1939. p.888-889, 130A. Material, called Koroseal, is used to coat paper and make it resistant to water, oil and many other things. In synthesis of new plastic, coke, limestone and salt are converted into polyvinyl chloride which, with suitable solvents and plasticizers, becomes rubberlike material. By varying plasticizers and solvents, chemists can produce Koroseal that ranges from soft jelly to bonelike solid, and having various other properties. Plastic is much like rubber and can be worked with rubber-processing machinery. Properties include resistance to sunlight, prolonged flexing, strong corrosives such as acids and alkalis, and to water; absence of swelling or breakdown when in contact with certain oils and solvents; ability to withstand oxygen and ozone for long periods without damage; resistance to fire; insulating properties against electricity.

Plastics made from coffee for wallboard and insulation. Popular mechanics magazine. v. 71, no. 5. May, 1939. p.726-727. Plastics, now in experimental stage, are made from unroasted beans and are odorless. They can be produced in almost any color and any stage of translucency or opacity except pure transparency, and little has to be added in manufacturing. The bean itself furnishes the dyes, bulk material and plasticizers. It is expected that process will offer valuable by-products such as oil similar to linseed, fertilizer, vitamin D, vegetable dyes and caffeine.

Poultry Houses and Equipment.

Hen batteries. By Margaret Montgomery. Ministry of agriculture. Journal. v. 45, no. 11. February, 1939. p.1119-1124.

Homemade brooder. By F.E. Mitchell and J.B. Campbell. In Annual report: Research and investigational activities for the fiscal year ending June 30, 1939, College of agriculture, University of Georgia. Ed. by F.B. Lanham. Athens, Ga., 1939. p.18-19.

Missouri summer range shelter. By D.D. Moyer and K.B. Huff. Columbia, Mo., 1939. 4p. University of Missouri. Agricultural extension service. Circular 404..

Old laying houses can be modernized. By D.C. Kennard and V.D. Chamberlin. In Bi-monthly bulletin, Ohio agricultural experiment station. Wooster, Ohio, 1939. v. 24, no. 198. p.62-64.

Stressed plywood coverings for poultry breeder houses. By Henry Giese and George H. Dunkelberg. Agricultural engineering. v. 20, no.5. May, 1939. p.187-189, 194.

Sunlight in the hog and poultry house. Markets. v. 3, no. 7. April 6, 1939. p.5.

Quick Freeze.

Frozen food industry: Selected references, Jan. 1937 to Mar. 1939. Comp. by H.E. Hennefrund. Washington, D.C., 1939. 14p. Mimeographed. U.S. Bureau of agricultural economics. Economic library list no.2.

Quick Freeze. (Cont'd)

Quick frozen foods. Fortune. v. 19, no. 6. June 1939. p.61-65, 118, 120, 122, 126, 128, 130.

Rainfall and Run-off.

Analysis of run-off characteristics: discussion. By C.O. Clark. American society of civil engineers. Proceedings. v. 65, no.5. May, 1939. p.884-886.

Method of measuring runoff velocity as related to soil movement between terraces. By E.G. Diseker. Agricultural engineering. v. 20, no.5. May, 1939. p.195-196. Purpose of paper to discuss method of measuring runoff velocity and related soil movements between terraces as basis for terrace spacing.

Simplified study of flood runoff. By Benjamin F. Chadwick. Military engineer. v. 31, no.176. March-April, 1939. p.123-125. Article written as introduction to modern thinking on problem of flood runoff.

Reclamation.

Construction of Island Park Dam Upper Snake river project, Idaho. By H.F. Bahmeier. Reclamation era. v. 29, no.5. May, 1939. p.104-108, 110.

Multiple-purpose project. By John C. Page. Reclamation era. v.29, no.5. May, 1939. p.93-95.

Reclaiming alkali lands. By C.H. Hinman. Western farm life. v.41, no.8. April 15, 1939. p.13. Problem of reclaiming such lands after drainage is provided is both chemical and physical. Chemically, problem concerns excess soluble salts deposited on or near soil surface. Obvious thing is to wash this alkali out with such excess of water that it is carried down through soil and out through drain ditches. Soils most readily reclaimed are those naturally porous or loamy through which water moves with comparative ease. Soils naturally heavy, finely divided with small particles, "clay" soils, are difficult because particles are cemented together with alkaline salts. In any case, there must be such drainage that excess water can get away instead of being evaporated from surface.

Refrigerants.

Dry ice for refrigeration of perishables shipped by rail. By Wellford Martin. Refrigerating engineering. v. 37, no.3. March, 1939. p.151-156. Mechanically refrigerated car has not met with great favor for following reasons: 1. In case of breakdown enroute of either car or its refrigeration system, product must either be transferred or allowed to spoil. 2. Cars when empty are often on unpoliced sidings and pilfering or meddling with mechanical devices is not unusual. 3. Mechanical devices are costly and heavy. Car must carry this excess whether running under refrigeration, heater, or ventilation. 4. In self-con-

Refrigerants.

tained units such as ones using gas as motive power, danger from fire is high in case of a wreck. Advantages offered by dry ice refrigeration in Broquinda system are: 1. Dry ice offers railroads uniform temperatures. 2. Dry ice offers railroads more definite and lower temperatures than are now available with water ice. 3. Dry ice in this system offers railroads an opportunity to utilize fully space within refrigerator car. 4. Dry ice offers railroads economy in refrigeration costs. 5. Dry ice offers railroads refrigerant that has no drippage to corrode tracks and trestles. 6. Dry ice offers railroads refrigerant that can be used in both cars and in railway containers. 7. Dry ice offers to shipper advantage of larger transportation units for large shipments and possibility of smaller transport units (containers) for small shipments. 8. It eliminates all re-icing stops and thus curtails time in transit. 9. Dry ice offers to car builder and car leasing companies such as fruit express companies first reversal of present trend away from use of refrigerator cars and then possibility of very lucrative business in refrigerated railway containers.

Refrigeration.

Cost of cooling milk. Cleveland, O., General electric co., Commercial refrigeration section, n.d. 2p. Mimeographed.

Heating and cooling problems in farming. By J.H. Marlow. Rural Electrification and electro-farming. v. 11, no. 166. March, 1939. p. 198-199.

Pumping the heat out of apples. By Ed. W. Mitchell. American agriculturist. v. 136, no. 5. March 4, 1939. p. 8, 10-11.

Temperature control vital to apple and pear industries. By Marcius E. Briston. Refrigerating engineering. v. 37, no. 3. March, 1939. p.167-168. 204. Recommendations for handling pears: 1. Pear storage rooms should be maintained at 30° to 31°F. 2. Relative humidity of pear storage rooms should be maintained between 78 to 85 percent. 3. Pears intended for long keeping should not be permitted to stand on track, on receiving platforms or on docks. 4. Pears in cold storage should be stacked in manner that permits air circulation around each package. 5. Pears should be stored by themselves and should not come into contact with other products.

Refrigerator Lockers.

Farm freezing plant and how to use it. By E.J. Dana and R.W. Miller. Pullman, Wash., 1939. 30p. State college of Washington. Extension service. Extension bulletin no.249.

Research.

Establishment of an Institute of Technology at Northwestern University. Science. v. 89, no. 2309. March 31, 1939. p.286-287. It will embrace research laboratory and, at the outset, four main divisions: civil, mechanical, electrical and chemical. Provision has been made,

Research. (Cont'd)

however, for adding more divisions, particularly those of applied arts, economics, metallurgy and aeronautics. Other departments and bureaus of research will be set up from time to time as deemed advisable to meet educational and engineering needs.

New technical school at Northwestern. Engineering news-record. v.122, no.13. March 30, 1939. p.37. Institute of Technology operating on cooperative plan with students alternating 12-week periods at school and similar periods working in Middlewestern industries is to be established at Northwestern University with aid of \$6,735,000 gift. O.W. Eshbach, personnel director of American Telephone & Telegraph Co., has been offered deanship of new institute.

Rubber.

Optical and dimensional changes which accompany the freezing and melting of Hevea rubber. By W.H. Smith and C.P. Saylor. Washington, U.S. Govt. print. off., 1938. 257-268p. U.S. National bureau of standards. Research paper RP1129.

Silos.

Silo problems created by grass crops. By J.W. Bartlett. Agricultural engineering. v. 20, no.5. May, 1939. p. 181-182, 186. These are: 1. Relation of moisture in grass to its successful preservation as silage. 2. Economical methods of harvesting and silo filling. 3. Correct preservative and its application. 4. Roughages to put in silo. 5. How much grass is form of silage or hay shall we preserve for our livestock?

Silt.

Advance report on the sedimentation survey of Greenbelt lake, Greenbelt, Maryland, January 27-February 8, 1938. By F.F. Barnes and C.B. Brown. Washington, D.C., 1939. 12p. Mimeographed. U.S. Soil conservation service, 1939. Sedimentation studies, Division of research.

Soil Moisture.

Subsoil moisture under semiarid conditions. By J.S. Cole and O.R. Mathews. Washington, U.S. Govt. print. off., 1939. 71p. U.S. Department of agriculture. Technical bulletin no.637.

Soils.

Soil - our basis resource. In Report of the agricultural experiment station, University of California, July 1, 1936 to June 30, 1938. Berkeley, Calif., 1938. p.1-14. "References": p.14.

Soils - Testing

Measurement of soil hardness. By A.A. Stone and Ira L. Williams. Agricultural engineering. v. 20, no. 1. January, 1939. p.25-26. Soil hardness is factor that affects many agricultural and horticultural problems. Development of uniform method for measuring soil hardness and uniform scale of numbers for expressing it seems highly desirable. Existence of such method and scale would make possible intelligent comparison of results secured and conditions met with in various sections. Instrument described here and method for its use are presented as starting point for work toward this desirable objective.

Rapid soil tests for estimating the fertility needs of Missouri soils. By L.D. Baver and F.H. Bruner. Columbia, Mo., 1939. 16p. Literature cited: p.16. University of Missouri. Agricultural experiment station. Bulletin 404.

Standards.

Commercial standards and their value to business. 2d ed. Washington, U.S. Govt. print. off. 1939. 23p. U.S. National bureau of standards. Commercial standard CSO-39.

Stoves.

Performance analysis of selected types of kerosene stoves. By M.M. Monroe. Orono, Me., 1939. 52lp. Literature cited: p.520-521. University of Maine. Agricultural experiment station. Bulletin 394.

Storage of Farm Produce.

Adaptation of refrigerated gas storage to perishables in the United States. By Mary E. Pennington. Ice and refrigeration. v. 96, no.3. March, 1939. p.235-237. Indicates preliminary work already done and envisions its practical application to our every day problems in handling of perishables and great territory still to be explored by laboratory scientist on one hand, and by practical business man on other.

Cranberry storage investigation. By C.I. Gunness, H.J. Franklin and C.R. Fellers. In Annual report for the fiscal year ending November 30, 1938. Amherst, Mass., 1939. p.52. Massachusetts agricultural experiment station. Bulletin no.355.

Effect of ammonia on nuts in storage. By D.H. Rose. Ice and Refrigeration. v. 96, no. 2. February, 1939. p.147-148.

Farm storages for ^New England apples. By C.I. Gunness, W.R. Cole and O.C. Roberts. Amherst, Mass., 1939. 32p. Massachusetts state college. Agricultural experiment station. Bulletin no.360.

Surveying.

Care of surveying instruments. By L.H. Berger. Civil Engineering. v. 9, no. 7. July 1939. p. 422-425.

Surveying. (Cont'd)

First- and second- order triangulation in Michigan (1927 datum). By G.L. Fentress. Washington, U.S. Govt. print. off., 1939. 427p. U.S. Coast and geodetic survey. Special publication no. 214.

Multiplex stretches the survey dollar. By T.P. Pendleton. Civil Engineering. v. 9, no. 7. July 1939. p. 401-404. Economy and accuracy of stereoscopic mapping method confirmed by results of U.S. Geological survey work in Tennessee valley.

Spirit leveling in Missouri. Part 4. Northwestern Missouri, 1896-1937. By J.G. Staack. Washington, U.S. Govt. print. off., 1938. 578p. U.S. Geological survey. Bulletin 898-D.

Swine House and Equipment.

Hog-lot equipment for Florida. By R.M. Crown. Gainesville, Fla., 1939. 20p. University of Florida. Cooperative extension work in agriculture and home economics. Bulletin 101

Terracing.

Theory of terrace gradient. By John C. Stephens. Agricultural engineering. v. 20, no. 4. April, 1939. p. 149-152. Paper shows relationships between principal variable factors which determine terrace gradient. Formulas developed showing mathematical relationship between various factors should be of help in experimental studies in that different factors can be analyzed separately and then integrated in logical manner.

Textile Fibers.

Effect of purification treatments on cotton and rayon. By R.K. Worner and R.T. Mease. Washington, U.S. Govt. print. off., 1938. 609-616p. U.S. National bureau of standards. Research paper RP1146.

Report on development and use of rayon and other synthetic fibers. Prepared by.....committee appointed by the Secretary of agriculture. Washington, D.C., U.S. Bureau of chemistry and soils, 1938. 50p. Mimeographed.

Tires.

A rational approach to tire-tread design. By John M. Lessella. Mechanical engineering. v. 61, no. 2. February, 1939. p.125-130.

Pneumatic tires for farming. By C. Kuijper. Amsterdam, Rubber foundation. n.d. 2p. Mimeographed. Translated in Amsterdam.

Rubber equipment in modern farm management. By D.N. McHardy. London, British rubber publicity association, 1939. 21p. Rubber and agriculture series. Bulletin no.11.

Tires. (Cont'd)

Study of tread bar heights on tractor tires. By W.N. McAdams. In Annual report: Research and investigational activities for the fiscal year ending June 30, 1939, College of agriculture, University of Georgia. Ed. by F.B. Lanham. Athens, Ga., 1939. p.60-61.

Tractors.

Effect of tire wear on tractor performance. By E.L. Barger and J. Roberts. Agricultural engineering. v. 20, no. 5. May, 1939. p.191-194. Tests made at Kansas State College to determine effect of tread wear on tractor performance on several different types of traction surfaces. These have been dynamometer tests and plowing and disking tests. Summary: 1. Maximum draft obtained was less with worn tires on all traction surfaces. 2. Drawbar load at which lowest fuel consumption was obtained was influenced by condition of tire tread. 3. Range of loads through which low fuel consumption can be obtained was wider with new tires. 4. At light to medium drawbar loads fuel consumption with worn tires was no greater than with new tires. 5. Within range of normal farm operation on field soils, worn tires will still give good performance. 6. Limitation in maximum draft with worn tires on few traction surfaces will probably be chief factor prompting tractor operator to take some action when his tractor tires become worn.

Testing machine for tractor front wheel bearing seals. Agricultural engineering. v. 20, no. 4. April 1939. p.146. Added to physical laboratory of Timken Roller Bearing Company at Canton, Ohio.

Tractor power adjusted to acreage. By W.T. Wilson. Agricultural leaders' digest. v. 20, no. 3. March, 1939. p.11.

Walls.

Wall construction for air conditioned houses and for refrigerated storages. By W.V. Hukill. Washington, D.C., U.S. Bureau of agricultural chemistry and engineering 1938. 8p. Mimeographed. Presented before the North Atlantic section of the American society of agricultural engineers at Boston, Mass. Wednesday, Sept. 21, 1938.

Waste Products.

Scrap and waste utilization in Germany. Bulletin of the Hamburg World's Economic Archives. v.5, no. 7. February, 1939. p.106-109.

Utilization of farm waste. California cultivator. v. 86, no. 7. April 8, 1939. p.195.

Water Power.

Hydro-electric development. By R.B. Fairthorne. Electrical review. v. 124, no. 3199. March 17, 1939. p.382-384. Its economic limits in comparison with steam.

Water Power. (Cont'd)

Small hydro-electric schemes. By J.D. Watson. Electrical times. v. 95, no. 2468. February 9, 1939. p.195-199. Choice of machinery, turbines, runners compared, draft tubes, governing and automatic control.

Water power resources of Canada. Canadian Engineer. v. 76, no. 19. May 9, 1939. p.9-12. Surveyed resources sufficient for 43,700,000 turbine h.p. - Less than 19 percent now installed - Large industries absorb 77 percent of all power developed - Pulp and paper mills biggest buyers.

Water Supply.

Fifty years of water resources study. By J.C. Hoyt. Engineering News Record. v. 122, no. 11. March 16, 1939. p.396-397.

Geology and ground water resources of the Snake river plain in southeastern Idaho. By H.T. Stearns, Lynn Crandall and W.G. Steward. Washington, U.S. Govt. print. off., 1938. 268p. U.S. Geological survey. Water-supply paper 774.

Ground-water resources of the Holbrook region, Arizona. By M.A. Harrell and E.B. Eckel. Washington, U.S. Govt. print. off., 1939. 105p. U.S. Geological survey. Water-supply paper 836-B.

Outline of the water facilities program. Soil conservation service. Washington, U.S. Govt. print. off., 1939. 24p.

Quality of water of the Rio Grande basin above Fort Quitman, Texas. By C.S. Scofield. Washington. U.S. Govt. print. off., 1938. 294p. Processed. U.S. Geological survey. Water-supply paper 839.

Relation of water facilities to agricultural relief and adjustment. By H.H. Gordon. Agricultural engineering. v. 20, no. 5. May, 1939. p.190, 196.

Water in the ground is cash in the bank. Farmers digest. v. 2, no.12. April, 1939. p.47-48. Twelve years records on Spur Experiment Station show actual increase of \$91.25 per acre in cash returns for cotton through holding all rainfall on field, as compared with un-terraced land alongside with same slight slope of 6 inches in 100 feet.

Water Supply, Rural

Water and sewage disposal for farm homes. By J.C. Wooley, M.M. Jones and K.B. Huff. Columbus, Mo., 1939. 14p. University of Missouri. Agricultural extension service. Circular 401.

Weeds.

Fencing ditch rights-of-way for pasture to control noxious weeds.
By A.W. Bainbridge. Reclamation era. v.29, no. 4. April, 1939.
p.78-79. Believe that it will greatly reduce cost of weed control
and that it is most economical method for controlling noxious weeds
on ditch rights-of-way.

Weirs.

Errors in discharge measurements due to transverse slope of weir crest.
By W.E. Wilson. Civil Engineering. v. 9, no. 7. July 1939.
p.429-430.

Reconditioning of Marala weir. By E.O. Cox and R.B. L. Ganpat Rai.
In Minutes of proceedings of the Punjab engineering congress, Lahore,
1938. Lahore, Mufid. I-'Am press, 1939? 153-195 sp.

Windmills.

Wind-driven battery charger. In Agricultural experiment station report,
two years ended June 30, 1938. Michigan state college of agriculture
and applied science, East Lansing. p.6. Consists essentially of six-
volt automotive generator with V-belt drive from two-blade or four-
blade propeller, at least six feet long, and operates successfully in
an 8 to 12 mile-per-hour wind. It should be equipped with step voltage
regulator to prevent overcharging battery and to eliminate personal
attention to state of charge in battery.

Wood.

American western pines and their uses. By W.L. Neubrech. Washington,
U.S. Govt. print. off., 1938. 34p. U.S. Bureau of foreign and
domestic commerce. Trade promotion series - No. 180.

Bearing strength of wood at angle to the grain. By J.A. Newlin.
Engineering news-record. v. 122, no. 19. May 11, 1939. p.69.
Gives nomograph for determining bearing strength of wood at various
angles to the grain.

Dual-purpose pines. Washington, U.S. Govt. print. off., 1938. 8p.
U.S. Department of agriculture. Forest service. Leaflet no.168.

Forest resources of northeastern Florida. By F.A. Ineson and I.F.
Eldredge. Washington, U.S. Govt. print. off., 1938. 40p. U.S.
Department of agriculture. Miscellaneous publication no. 313.